

WHAT IS CLAIMED IS:

1. A wireless communication receiving apparatus, comprising:

an antenna for receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which are respectively associated with said first and second wireless communication channels and which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

a probability generator coupled to said antenna and responsive to said composite communication symbol for generating, for each of said first and second communication symbols, a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

first and second SISO decoders respectively corresponding to said first and second coding operations and coupled to said probability generator for respectively receiving therefrom the pluralities of probabilities corresponding to said first and second communication symbols, each of said SISO decoders operable for performing a decoding operation on the associated plurality of probabilities; and

a sequencer apparatus coupled to said first and second SISO decoders, said sequencer apparatus having an input for receiving information about one of said wireless communication channels, said sequencer apparatus responsive to said wireless communication channel information for controlling said SISO decoders such that one of

said SISO decoders performs its associated decoding operation before the other of said SISO decoders performs its associated decoding operation.

2. The apparatus of Claim 1, wherein said wireless communication channel
5 information includes information about both of said wireless communication channels.

3. The apparatus of Claim 2, wherein said wireless communication channel
information includes information indicative of communication quality in said wireless
communication channels.

4. The apparatus of Claim 3, wherein said quality information includes
information indicative of respective fading characteristics associated with said wireless
communication channels.

5. The apparatus of Claim 4, wherein said sequencer apparatus is operable
for determining from said fading characteristic information that the wireless
communication channel associated with said one SISO decoder has more fading than the
wireless communication channel associated with said other SISO decoder.

6. The apparatus of Claim 3, wherein said sequencer apparatus is operable for determining from said quality information that the communication quality of the wireless communication channel associated with said one SISO decoder is inferior to the communication quality of the wireless communication channel associated with said other SISO decoder.

7. The apparatus of Claim 1, wherein said wireless communication channel information includes information indicative of communication quality in said one wireless communication channel.

8. The apparatus of Claim 7, wherein said quality information includes information indicative of a fading characteristic associated with said one wireless communication channel.

9. The apparatus of Claim 1, wherein said probability generator is operable for generating at least one of said pluralities of probabilities also in response to SISO information received by said probability generator from at least one of said SISO decoders.

10. A method of wireless communication, comprising:

receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which are respectively associated with said first and second wireless communication channels and which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

for each of said first and second communication symbols, and responsive to the composite communication symbol, generating a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

applying to first and second SISO decoders, which SISO decoders respectively correspond to said first and second coding operations, the pluralities of probabilities that correspond to said first and second communication symbols, respectively;

each of said SISO decoders performing a decoding operation on the plurality of probabilities applied thereto; and

in response to information about one of said wireless communication channels, controlling the SISO decoders such that one of the SISO decoders performs its associated decoding operation before the other SISO decoder performs its associated decoding operation.

11. The method of Claim 10, wherein said wireless communication channel information includes information about both of said wireless communication channels.

12. The method of Claim 11, wherein said wireless communication channel
5 information includes information indicative of communication quality in said wireless communication channels.

13. The method of Claim 12, wherein said quality information includes
information indicative of respective fading characteristics associated with said wireless
10 communication channels.

14. The method of Claim 13, including determining from said fading
characteristic information that the wireless communication channel associated with said
one SISO decoder has more fading than the wireless communication channel associated
15 with said other SISO decoder.

15. The method of Claim 12, including determining from said quality
information that the communication quality of the wireless communication channel

associated with said one SISO decoder is inferior to the communication quality of the wireless communication channel associated with said other SISO decoder.

16. The method of Claim 10, wherein said wireless communication channel
5 information includes information indicative of communication quality in said one wireless communication channel.

17. The method of Claim 16, wherein said quality information includes
information indicative of a fading characteristic associated with said one wireless
10 communication channel.

18. The method of Claim 10, wherein said generating step includes generating
at least one of said pluralities of probabilities also in response to SISO information
produced by at least one of the SISO decoders.

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